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(56) Documents cited  
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EP 0142238 A

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## (54) Erasure of recording media

(57) Data is erased from one or more magnetically encoded discs which are rotatably mounted in a non-ferrous casing (a hard disc) by subjecting the casing 10 to an external magnetic field. The disc(s) 12 may be rotated within the casing. Apparatus for use in the method comprises a compartment for receiving the casing containing the discs and means for providing a magnetic field within the compartment external of the casing.

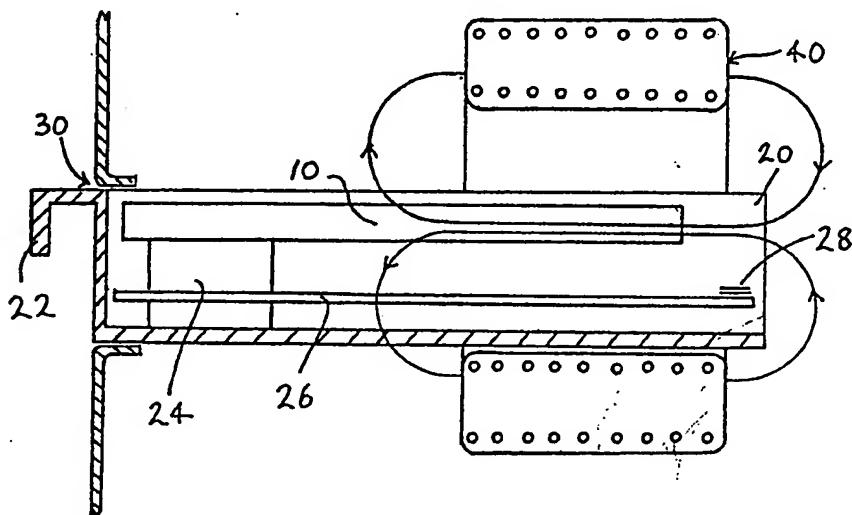


FIGURE 2

At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

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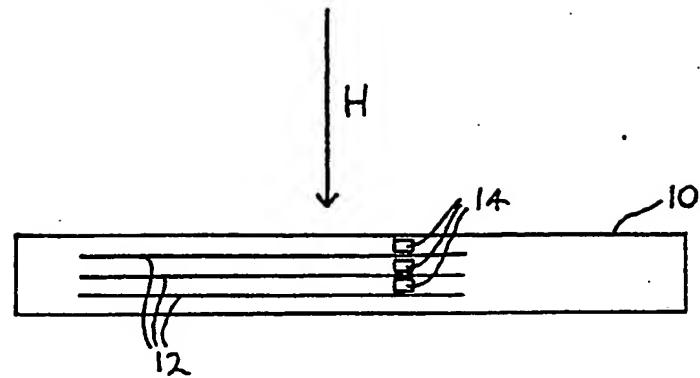


FIGURE 1

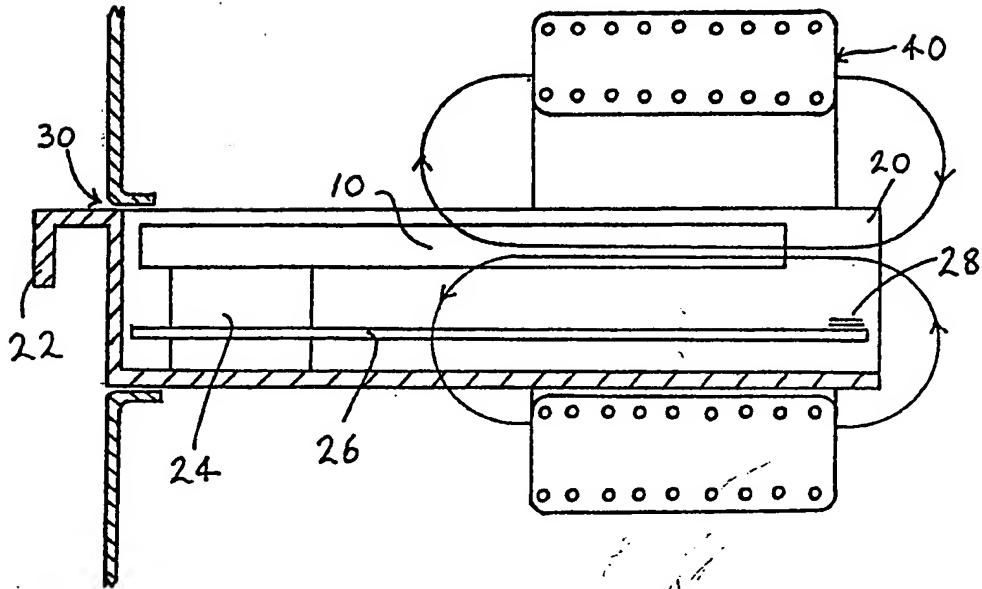


FIGURE 2

Erasure of Recording Media

This invention relates to a method and apparatus for bulk erasing magnetically encoded recording media.

The so-called hard disc provides a recording medium with very high data storage capacity. The hard disc typically comprises a number of record discs mounted rotatably within an alloy or plastics casing, a read/write head being provided within the casing for each record disc. Whilst data recorded on the disc can be over-written, it is not however possible to completely erase the recorded data, there being no erase head within the casing for any of the record discs. There are situations where the user wishes to prevent data recorded on a hard disc from being read any more, by for example a repair department, typically where the data is confidential: in these circumstances, the hard disc must be broken up and destroyed. This is undesirable in view of the expense of hard discs. In other cases, the user may wish to erase a hard disc and make fresh use of it, but this is not at present possible.

We have now devised a method and apparatus for erasing data recorded on hard discs.

In accordance with this invention, there is provided a method of erasing data recorded on one or more magnetically encoded discs which are rotatably mounted in a non-ferrous casing, comprising the step of subjecting the casing containing the disc(s) to an external magnetic field.

Also in accordance with this invention, there is provided an apparatus for erasing data recorded on one or more magnetically encoded discs which are rotatably mounted in a non-ferrous casing, the apparatus comprising a compartment for receiving the casing containing the disc(s), and means for providing a magnetic field within the compartment externally of the casing.

The magnetic field is external to the disc drive

unit or disc casing and is not part of the disc drive mechanism.

We have found that a hard disc, comprising an alloy casing in which a number of record discs are rotatably mounted, can be erased effectively using the method and apparatus defined above. The erased disc can then be re-used as new, avoiding any requirement to discard it or even destroy it.

Preferably the disc(s) are rotated whilst the casing is subjected to the magnetic field. Preferably an electromagnet coil encircles the casing to provide the magnetic field. The coil may be driven by a direct current or by an alternating current or by a pulsed current.

The hard disc may be incorporated in a unit which is readily removable from a data processing apparatus with which it is to be used. Such a unit may include a drive motor for the record discs and circuits controlling the drive motor and the read/write heads within the hard disc, together with a connector which engages with a complementary connector within the host apparatus to connect power and signal lines to the unit. In this case the erasure apparatus in accordance with this invention is arranged to receive the unit and includes a connector to engage with the connector on the unit to supply power for the drive motor to rotate the record discs.

An embodiment of this invention will now be described by way of examples only and with reference to the accompanying drawings, in which:

FIGURE 1 is a diagram to illustrate the principles in accordance with this invention for erasing data recorded on a hard disc; and

FIGURE 2 is a diagrammatic section through a hard disc unit which is removable and replaceable with respect to a data processing apparatus and which is shown engaged with an erasing apparatus in accordance with this invention.

Referring to Figure 1, a hard disc typically comprises a flat casing 10 of aluminium or alloy, in which a number of magnetically encodable discs 12 are mounted for

rotation around their axes, indicated at 16. Read/write heads 14 for the individual discs are also provided within the casing.

In order to erase data recorded on the discs 12, in accordance with this invention a strong external magnetic field H is applied to the hard disc, for example transversely to the plane of the discs 12, and preferably and the discs are rotated for a predetermined period of time. Typically the magnetic field may be 100 gauss and may be provided by a permanent magnet or by an electromagnet.

Referring to Figure 2, there is shown a unit which is slidably engageable with a data processing apparatus with which it is to be used. The unit comprises a body 20 which is formed with a handle 22 at its front, so that the unit may be slid into and out of a receiving compartment within the host apparatus, in the manner of a drawer. The body 20 mounts the hard disc 10 and also a drive motor 24 for the hard disc and a circuit board 26 mounting the control circuits for the drive motor and for the read/write heads of the hard disc. The rear edge of the circuit board 26 is formed as an edge connector 28 for coupling with a connector within the host apparatus, as the unit is slid into position within the latter, to couple power and signal lines to the unit.

In accordance with this invention, one embodiment of erasure apparatus comprises a compartment 30 into which the unit of Figure 2 can be slid for the edge connector 28 at the rear of its circuit board to engage with a connector within the apparatus, serving to supply power for the drive motor of the unit. The apparatus further comprises an electromagnet coil 40 with its axis parallel to the direction of sliding of the unit and encircling the unit when the latter is inserted into the compartment. In use therefore, a unit to be erased is slid into the compartment of the erasure apparatus and the drive motor of the unit is energised for a predetermined period of time to rotate the record discs whilst the unit is subjected to the magnetic field. The unit is then removed from the apparatus for

re-use. The current which is passed through the coil may be direct current or alternating current or discrete pulses of current. More than one electromagnet coil may be provided and the coils may be driven so that the electromagnetic field moves or rotates.

CLAIMS

- 1) A method of erasing data recorded on one or more magnetically encoded discs which are rotatably mounted in a non-ferrous casing, comprising the step of subjecting the casing containing the disc(s) to an external magnetic field.
- 2) A method as claimed in claim 1, in which the disc(s) are rotated within the casing whilst the external magnetic field is applied.
- 3) A method as claimed in claim 1 or 2, in which the magnetic field is applied by one or more electromagnet coils encircling the casing.
- 4) A method as claimed in claim 3, in which the or each electromagnet coil is driven by a direct current, by an alternating current or by a pulsed current.
- 5) A method as claimed in any preceding claim, in which the external magnetic field is caused to move or rotate.
- 6) An apparatus for erasing data recorded on one or more magnetically encoded discs which are rotatably mounted in a non-ferrous casing, the apparatus comprising a compartment for receiving the casing containing the disc(s), and means for providing a magnetic field within the compartment external of the casing.
- 7) An apparatus as claimed in claim 6, further comprising means for causing rotation of the disc(s) whilst the casing is subjected to the external magnetic field.
- 8) An apparatus as claimed in claim 6 or 7, in which the means

for providing the external magnetic field comprises one or more electromagnetic coils which encircle the casing when inserted into the compartment.

9) An apparatus as claimed in claim 8, comprising means for applying a direct current or an alternating current or a pulsed current to the or each electromagnet coil.

10) An apparatus as claimed in any one of claims 6 to 9, including means for causing the magnetic field to move or rotate.